

(FILE 'USPAT' ENTERED AT 07:15:52 ON 28 JAN 1999)

L1 1 S 5744347/PN  
L2 1 S L1 AND (LIF OR LEUKEMIA INHIBITORY FACTOR OR LYMPHOCYTE  
INF

=> s (neural stem cell# or neuronal stem cell#) and (lif or leukemia  
inhibitory factor or lymphocyte infiltration factor or cdf or cholinergic  
differentiation factor)

7151 NEURAL  
89216 STEM  
266356 CELL#  
32 NEURAL STEM CELL#  
(NEURAL(W) STEM(W) CELL#)  
3405 NEURONAL  
89216 STEM  
266356 CELL#  
10 NEURONAL STEM CELL#  
(NEURONAL(W) STEM(W) CELL#)  
2225 LIF  
8954 LEUKEMIA  
25057 INHIBITORY  
262153 FACTOR  
218 LEUKEMIA INHIBITORY FACTOR  
(LEUKEMIA(W) INHIBITORY(W) FACTOR)  
6301 LYMPHOCYTE  
9024 INFILTRATION  
262153 FACTOR  
0 LYMPHOCYTE INFILTRATION FACTOR  
(LYMPHOCYTE(W) INFILTRATION(W) FACTOR)  
1081 CDF  
2230 CHOLINERGIC  
22553 DIFFERENTIATION  
262153 FACTOR  
8 CHOLINERGIC DIFFERENTIATION FACTOR  
(CHOLINERGIC(W) DIFFERENTIATION(W) FACTOR)  
L3 16 (NEURAL STEM CELL# OR NEURONAL STEM CELL#) AND (LIF OR LEUK  
EMI  
A INHIBITORY FACTOR OR LYMPHOCYTE INFILTRATION FACTOR OR CD  
F O  
R CHOLINERGIC DIFFERENTIATION FACTOR)

=> s l3 and (media or medium or buffer# or hormone# or insulin or transferrin or progesterone or selenium or putrescine or growth factor# or efg or tgf or bfgf or pdgf or heparin) steps

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L4 ( 135640)MEDIA
L5 ( 396834)MEDIUM
L6 ( 198198)BUFFER#
L7 ( 22361)HORMONE#
L8 ( 11132)INSULIN
L9 ( 2285)TRANSFERRIN
L10 ( 3133)PROGESTERONE
L11 ( 19135)SELENIUM
L12 ( 553)PUTRESCINE
L13 ( 145993)GROWTH
L14 ( 434917)FACTOR#
L15 ( 10542)GROWTH FACTOR#
      (GROWTH (W) FACTOR#)
L16 ( 411)EFG
L17 ( 1935)TGF
L18 ( 634)BFGF
L19 ( 1554)PDGF
L20 ( 9578)HEPARIN
L21 16 L3 AND (MEDIA OR MEDIUM OR BUFFER# OR HORMONE# OR INSULIN O
R T      RANSFERRIN OR PROGESTERONE OR SELENIUM OR PUTRESCINE OR GRO
WTH      FACTOR# OR EFG OR TGF OR BFGF OR PDGF OR HEPARIN)
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=> d 121 1-

1. 5,858,747, Jan. 12, 1999, Control of cell growth in a bioartificial organ with extracellular matrix coated microcarriers; Malcolm Schinstine, et al., 435/182; 424/93.21, 93.7, 422; 435/176, 177, 178, 289.1, 377, 382, 395, 403 [IMAGE AVAILABLE]
2. 5,853,717, Dec. 29, 1998, Methods and compositions of growth control for cells encapsulated within bioartificial organs; Malcolm Schinstine, et al., 424/93.21; 435/326, 372.2, 372.3, 382 [IMAGE AVAILABLE]
3. 5,851,832, Dec. 22, 1998, In vitro growth and proliferation of multipotent **neural stem cells** and their progeny; Samuel Weiss, et al., 435/368, 325, 366, 377, 383, 384 [IMAGE AVAILABLE]
4. 5,843,431, Dec. 1, 1998, Controlling proliferation of cells before and after encapsulation in a bioartificial organ by gene transformation; Malcolm Schinstine, et al., 424/93.21, 93.7, 422; 435/174, 178, 377, 382, 395 [IMAGE AVAILABLE]
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6. 5,833,979, Nov. 10, 1998, Methods and compositions of growth control for cells encapsulated within bioartificial organs; Malcolm Schinstine, et al., 424/93.21, 553, 556; 435/174, 352 [IMAGE AVAILABLE]
7. 5,795,790, Aug. 18, 1998, Method for controlling proliferation and differentiation of cells encapsulated within bioartificial organs; Malcolm Schinstine, et al., 435/382; 424/93.7; 435/177, 178, 180, 182 [IMAGE AVAILABLE]
8. 5,789,653, Aug. 4, 1998, Secretory gene trap; William C. Skarnes, 800/18; 435/6, 91.1, 320.1, 325 [IMAGE AVAILABLE]
9. 5,776,747, Jul. 7, 1998, Method for controlling the distribution of cells within a bioartificial organ using polychethylene oxide-poly (dimethylsiloxane) copolymer; Malcolm Schinstine, et al., 435/177, 180, 181, 182 [IMAGE AVAILABLE]
10. 5,753,506, May 19, 1998, Isolation propagation and directed differentiation of stem cells from embryonic and adult central nervous system of mammals; Karl K. Johe, 435/377, 325, 366, 368 [IMAGE AVAILABLE]
11. 5,750,376, May 12, 1998, In vitro growth and proliferation of genetically modified multipotent **neural stem cells** and their progeny; Samuel Weiss, et al., 435/69.52, 69.1, 325, 368, 377, 384, 392, 395, 455, 456, 458, 461 [IMAGE AVAILABLE]
12. 5,676,943, Oct. 14, 1997, Compositions and methods for the delivery of biologically active molecules using genetically altered cells contained in biocompatible immunoisulatory capsules; Edward E. Baetge, et al., 424/93.21, 93.3 [IMAGE AVAILABLE]
13. 5,656,481, Aug. 12, 1997, Compositions and methods for the delivery of biologically active molecules using cells contained in biocompatible capsules; Edward E. Baetge, et al., 435/325; 424/93.1, 93.2, 93.21, 93.3,

93.7; 435/347, 373, 382 [IMAGE AVAILABLE]

14. 5,653,975, Aug. 5, 1997, Compositions and methods for the delivery of biologically active molecules using cells contained in biocompatible capsules; Edward E. Baetge, et al., 424/93.1, 93.2, 93.21, 93.3, 93.7 [IMAGE AVAILABLE]

15. 5,639,618, Jun. 17, 1997, Method of isolating a lineage specific stem cell in vitro; David A. Gay, 435/7.21, 2, 6, 7.1, 7.2 [IMAGE AVAILABLE]

16. 5,639,275, Jun. 17, 1997, Delivery of biologically active molecules using cells contained in biocompatible immunoisulatory capsules; Edward E. Baetge, et al., 604/891.1; 424/93.1, 93.2, 422, 424; 435/325 [IMAGE AVAILABLE]

L1 1 S 5744347/PN  
 L2 1 S L1 AND (LIF OR LEUKEMIA INHIBITORY FACTOR OR LYMPHOCYTE  
 INF  
 L3 16 S (NEURAL STEM CELL# OR NEURONAL STEM CELL#) AND (LIF OR L  
 EUK  
 L4 ( 135640)S MEDIA  
 L5 ( 396834)S MEDIUM  
 L6 ( 198198)S BUFFER#  
 L7 ( 22361)S HORMONE#  
 L8 ( 11132)S INSULIN  
 L9 ( 2285)S TRANSFERRIN  
 L10 ( 3133)S PROGESTERONE  
 L11 ( 19135)S SELENIUM  
 L12 ( 553)S PUTRESCINE  
 L13 ( 145993)S GROWTH  
 L14 ( 434917)S FACTOR#  
 L15 ( 10542)S GROWTH FACTOR#  
 L16 ( 411)S EFG  
 L17 ( 1935)S TGF  
 L18 ( 634)S BFGF  
 L19 ( 1554)S PDGF  
 L20 ( 9578)S HEPARIN  
 L21 16 S L3 AND (MEDIA OR MEDIUM OR BUFFER# OR HORMONE# OR INSULI  
 N O  
 L22 1 S 5851832/PN  
 L23 1 S L22 AND (LIF OR LEUKEMIA INHBITORY FACTOR)  
 L24 1 S L23 AND HEPARIN  
 L25 1 S 5750376/PN  
 L26 1 S L25 AND (LIF AND HEPARIN)  
 L27 1 S L25 AND (LIF OR LEUKEMIA INHIBITORY FACTOR OR LYMPHOCYTE  
 IN

Add'l. APS

=&gt; index medline biosis

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.60

0.60

2 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view  
search error messages that display as 0\* with SET DETAIL OFF.

=> s ((neural or neuronal) (w) stem cell#) and (lif or leukemia inhibitory  
factor)

2 FILE MEDLINE

1 FILES SEARCHED...

2 FILE BIOSIS

2 FILES HAVE ONE OR MORE ANSWERS, 2 FILES SEARCHED IN STNINDEX

L1 QUE ((NEURAL OR NEURONAL) (W) STEM CELL#) AND (LIF OR LEUKEMIA  
INHIBITORY  
FACTOR)

=&gt; file hits

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

2.25

2.85

1 FILES SEARCHED...

L2 4 L1

=&gt; dup rem l2

PROCESSING COMPLETED FOR L2

L3 2 DUP REM L2 (2 DUPLICATES REMOVED)

=&gt; d bib ab 1-2

STN

L3 ANSWER 1 OF 2 MEDLINE  
AN 1999017613 MEDLINE  
DN 99017613

DUPLICATE 1

TI Regulation of **neural stem cell**  
differentiation in the forebrain.

AU Bartlett P F; Brooker G J; Faux C H; Dutton R; Murphy M; Turnley A;  
Kilpatrick T J

CS Walter and Eliza Hall Institute of Medical Research, Parkville, Victoria,  
Australia.. bartlett@wehi.edu.au

SO IMMUNOLOGY AND CELL BIOLOGY, (1998 Oct) 76 (5) 414-8.  
Journal code: GH8. ISSN: 0818-9641.

CY Australia

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199903

EW 19990301

AB In the developing forebrain, mounting evidence suggests that

**neural stem cell** proliferation and differentiation is regulated by growth factors. In vitro in the presence of serum, stem cell proliferation is predominantly mediated by fibroblast growth factor-2 (FGF-2) whereas neuronal differentiation can be triggered by FGF-1 in association with a specific heparan sulphate proteoglycan. On the other hand, astrocyte differentiation in vivo and in vitro appears to be dependent on signalling through the leukaemia inhibitory factor receptor (LIFR). The evidence suggests that in the absence of LIFR signalling, the stem cell population is present at approximately the same frequency and can generate neurons but is blocked from producing astrocytes that express glial fibrillary acidic protein (GFAP) or have trophic functions. The block can be overcome by other growth factors such as BMP-2/4 or interferon-gamma, providing further evidence that the inhibition to astrocyte development does not result from loss of a precursor population. Signalling through the LIFR, in addition to stimulating astrocyte differentiation, may also inhibit neuronal differentiation, which may explain why this receptor is expressed at the earliest stages of neurogenesis. Another signalling system which also exerts its influence on neurogenesis through active inhibition is Delta-Notch. We show in vitro that at high cell densities which impede neuronal production by FGF-1, lowering the levels of expression of the receptor Notch by antisense oligonucleotide results in a significant increase in neuronal production. Thus, stem cell differentiation appears to be dependent on the outcome of interactions between a number of signalling pathways, some which promote specific lineages and some which inhibit.

L3 ANSWER 2 OF 2 MEDLINE

DUPLICATE 2

AN 96035122 MEDLINE

DN 96035122

TI Cytokines regulate the cellular phenotype of developing neural lineage species.

AU Mehler M F; Marmur R; Gross R; Mabie P C; Zang Z; Papavasiliou A; Kessler J A

CS Department of Neurology, Albert Einstein College of Medicine, Bronx, NY 10461, USA..

SO INTERNATIONAL JOURNAL OF DEVELOPMENTAL NEUROSCIENCE, (1995 Jun-Jul) 13 (3-4) 213-40.

Journal code: 126. ISSN: 0736-5748.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199601

AB The patterns and mechanisms of action of inductive signals that orchestrate neural lineage commitment and differentiation in the

mammalian

brain are incompletely understood. To examine these developmental issues, we have utilized several culture systems including conditionally immortalized cell lines, subventricular zone progenitor cells and primary neuronal cultures. A neural stem and progenitor cell line (MK31) was established from murine embryonic hippocampus by retroviral transduction of temperature-sensitive alleles of the simian virus 40 large tumor antigen. At the non-permissive temperature for antigen expression (39 degrees C) in serum-free media, the **neural stem cells** give rise to a series of increasingly mature neuronal progenitor and differentiated cellular forms under the influence of a subset of hematolymphopoietic cytokines (interleukins 5, 7, 9 and 11), when individually co-applied with transforming growth factor alpha, after pretreatment with basic fibroblast growth factor. These cellular forms elaborated a series of progressively more mature neurofilament proteins,

a

sequential pattern of ligand-gated channels, and inward currents and generation of action potentials with mature physiological properties. Because the factors regulating the development of central nervous system astrocytes have been so difficult to define, we have chosen to focus, in this manuscript, on the elaboration of this cell type. At 39 degrees C, application of a subfamily of bone morphogenetic proteins of the transforming growth factor beta superfamily of growth factors sanctioned the selective expression of astrocytic progenitor cells and mature astrocytes, as defined by sequential elaboration of the Yb subunit of glutathione-S-transferase and glial fibrillary acidic protein. These lineage-specific cytokine inductive relationships were verified using subventricular zone neural progenitor cells generated by the application of epidermal growth factor, alone or in combination with basic fibroblast growth factor, to dissociated cellular cultures derived from early embryonic murine brain, a normal non-transformed developmental

population.

Finally, application of a different series of cytokines from five distinct

factor classes (basic fibroblast growth factor, platelet-derived growth factor-AA, insulin-like growth factor 1, neurotrophin 3 and

representative

gp130 receptor subunit-related ligands) caused the elaboration of oligodendroglial progenitor species and post-mitotic oligodendrocytes,



defined by progressive morphological maturation and the expression of increasingly enhanced oligodendroglial and oligodendrocyte lineage markers. In addition, seven different gp130-associated neuropoietic (ciliary neurotrophic factor, **leukemia inhibitory factor**, oncostatin-M) and hematopoietic (interleukins 6, 11, 12, granulocyte-colony stimulating factor) cytokines exhibited differential trophic effects on oligodendroglial lineage maturation and factor class interactions. (ABSTRACT TRUNCATED AT 400 WORDS)

L1 2262 S LEUKEMIA INHIBITORY FACTOR OR LIF  
 L2 ( 135640)S MEDIA  
 L3 ( 396834)S MEDIUM  
 L4 ( 198198)S BUFFER#  
 L5 ( 22361)S HORMONE#  
 L6 ( 11132)S INSULIN  
 L7 ( 2285)S TRANSFERRIN  
 L8 ( 3133)S PROGESTERONE  
 L9 ( 19135)S SELENIUM  
 L10 ( 553)S PUTRESCINE  
 L11 ( 145993)S GROWTH  
 L12 ( 434917)S FACTOR#  
 L13 ( 10542)S GROWTH FACTOR#  
 L14 ( 2343)S EGF  
 L15 ( 1935)S TGF  
 L16 ( 634)S BFGF  
 L17 ( 1554)S PDGF  
 L18 165 S L1 AND ((MEDIA OR MEDIUM) AND BUFFER# AND (HORMONE# OR I  
 NSU  
 L19 103 S L18 AND STEM CELL#  
 L20 6 S L18 AND NEURAL STEM CELL#  
 L21 1 S (LEUKEMIA INHIBITORY FACTOR OR LIF) AND NEURONAL STEM CE  
 LL#  
 L22 16 S (LEUKEMIA INHIBITORY FACTOR OR LIF) AND NEURAL STEM CELL  
 #  
 L23 10 S L22 AND HEPARIN  
 L24 1 S 5750376/PN  
 L25 1 S L24 AND HEPARIN  
 L26 1 S 5753506/PN  
 L27 1 S L26 AND HEPARIN  
 L28 ( 135640)S MEDIA  
 L29 ( 396834)S MEDIUM  
 L30 ( 198198)S BUFFER#  
 L31 ( 22361)S HORMONE#  
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 L33 ( 2285)S TRANSFERRIN  
 L34 ( 3133)S PROGESTERONE  
 L35 ( 19135)S SELENIUM  
 L36 ( 0)S PTRESCINE  
 L37 ( 145993)S GROWTH  
 L38 ( 434917)S FACTOR#  
 L39 ( 10542)S GROWTH FACTOR#  
 L40 ( 2343)S EGF  
 L41 ( 1935)S TGF  
 L42 ( 634)S BFGF  
 L43 ( 1554)S PDGF  
 L44 1 S L26 AND (MEDIA OR MEDIUM OR BUFFER# OR HORMONE# OR INSUL  
 IN  
 L45 ( 8954)S LEUKEMIA  
 L46 ( 25057)S INHIBITORY  
 L47 ( 262153)S FACTOR  
 L48 ( 218)S LEUKEMIA INHIBITORY FACTOR  
 L49 ( 2225)S LIF  
 L50 ( 135640)S MEDIA  
 L51 ( 396834)S MEDIUM  
 L52 ( 22361)S HORMONE#  
 L53 ( 11132)S INSULIN

APS

L54 ( 2285)S TRANSFERRIN  
L55 ( 3133)S PHOTOTERONE  
L56 ( 19135)S SELENIUM  
L57 ( 553)S PUTRESCINE  
L58 ( 145993)S GROWTH  
L59 ( 434917)S FACTOR#  
L60 ( 10542)S GROWTH FACTOR#  
L61 ( 411)S EFG  
L62 ( 1935)S TGF  
L63 ( 634)S BFGF  
L64 ( 1554)S PDGF  
L65 9 S (LEUKEMIA INHIBITORY FACTOR OR LIF) (P) (MEDIA OR MEDIUM  
) (  
L66 9 S L65 AND STEM  
L67 6 S L65 AND HEPARIN

> d 120 1-

1. 5,851,832, Dec. 22, 1998, In vitro growth and proliferation of multipotent **neural stem cells** and their progeny; Samuel Weiss, et al., 435/368, 325, 366, 377, 383, 384 [IMAGE AVAILABLE]
2. 5,750,376, May 12, 1998, In vitro growth and proliferation of genetically modified multipotent **neural stem cells** and their progeny; Samuel Weiss, et al., 435/69.52, 69.1, 325, 368, 377, 384, 392, 395, 455, 456, 458, 461 [IMAGE AVAILABLE]
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} same spec  
as 5,750,376 - IDS ref.

5. 5,840,576, Nov. 24, 1998, Methods and compositions of growth control for cells encapsulated within bioartificial organs; Malcolm Schinstine, et al., 435/325, 375, 377, 400 [IMAGE AVAILABLE]
6. 5,833,979, Nov. 10, 1998, Methods and compositions of growth control for cells encapsulated within bioartificial organs; Malcolm Schinstine, et al., 424/93.21, 553, 556; 435/174, 352 [IMAGE AVAILABLE]
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10. 5,750,376, May 12, 1998, In vitro growth and proliferation of genetically modified multipotent **neural stem cells** and their progeny; Samuel Weiss, et al., 435/69.52, 69.1, 325, 368, 377, 384, 392, 395, 455, 456, 458, 461 [IMAGE AVAILABLE]

=> d 144 1-

1. 5,753,506, May 19, 1998, Isolation propagation and directed differentiation of stem cells from embryonic and adult central nervous system of mammals; Karl K. Johe, 435/377, 325, 366, 368 [IMAGE AVAILABLE]

=> d 165 1-

1. 5,766,948, Jun. 16, 1998, Method for production of neuroblasts; Fred H. Gage, et al., 435/368, 325, 366, 395, 402, 404 [IMAGE AVAILABLE]

2. 5,744,347, Apr. 28, 1998, Yolk sac stem cells and their uses; Thomas E. Wagner, et al., 435/354, 7.21, 355, 378, 401 [IMAGE AVAILABLE]

3. 5,389,541, Feb. 14, 1995, Erythropoietin-dependent erythroblastoid mouse cell line; Gordon Keller, et al., 435/355, 7.2, 7.21, 7.4 [IMAGE AVAILABLE]

4. 5,292,656, Mar. 8, 1994, Rat osteosarcoma cell line OSR-6; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

5. 5,288,628, Feb. 22, 1994, Rat osteosarcoma cell line OSR4TR1; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

6. 5,286,645, Feb. 15, 1994, Rat osteosarcoma cell line osr3trl; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

7. 5,286,643, Feb. 15, 1994, Rat osteosarcoma cell line OSR-8; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

8. 5,286,642, Feb. 15, 1994, Rat osteosarcoma cell line OSR5TR2; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

9. 5,264,358, Nov. 23, 1993, Rat osteosarcoma cell line OSR9TR1; Claus-Jens W. Doersen, et al., 435/353 [IMAGE AVAILABLE]

=> d 167 1-

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3. 5,286,645, Feb. 15, 1994, Rat osteosarcoma cell line osr3trl; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

4. 5,286,643, Feb. 15, 1994, Rat osteosarcoma cell line OSR-8; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

5. 5,286,642, Feb. 15, 1994, Rat osteosarcoma cell line OSR5TR2; Claus-Jens W. Doersen, et al., 435/353, 70.1; 530/350 [IMAGE AVAILABLE]

6. 5,264,358, Nov. 23, 1993, Rat osteosarcoma cell line OSR9TR1; Claus-Jens W. Doersen, et al., 435/353 [IMAGE AVAILABLE]